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DIAGNOSTIC ACCURACY, IMAGE QUALITY AND PATIENT COMFORT FOR CORONARY CT ANGIOGRAPHY PERFORMED USING LOW VERSUS HIGH IODINE CONTENT CONTRAST: A PROSPECTIVE MULTICENTER RANDOMIZED CONTROLLED TRIAL

Moderated Poster Contributions
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Background: The aim of the study was to compare the diagnostic accuracy, image quality and patient comfort for coronary CT angiography (CCTA) performed using low versus high iodine content contrast.

Methods: Patients referred for invasive coronary angiography (ICA) were randomly assigned to investigational CCTA using iodixanol 370 mg/dl contrast. Diagnostic performance to identify or exclude obstructive coronary stenosis (>70% luminal diameter stenosis) was assessed employing quantitative coronary angiography (QCA) as a reference standard. Obstructive stenosis presence by CCTA was determined by consensus of 2-blinded expert readers, and by QCA using standard software by an expert blinded core laboratory. Image quality was similarly assessed using a 5-point Likert scale. We further compared patient comfort between groups, defined by a composite endpoint of pain at injection site, hypotension, palpitations, lightheadedness, and/or chest discomfort. Patient comfort was ascertained by patient report immediately after CCTA using a 10-point scale, and categorized as none (0), mild (1-3), moderate (4-7) or severe (8-10).

Results: A total of 266 subjects underwent both CCTA and ICA (56.7 + 11.3 years, 57.5% male). Baseline characteristics between the 2 groups were similar. Evaluation of diagnostic accuracy, sensitivity, specificity, positive and negative predictive values to diagnose > 70% stenosis rendered similar values, 93%, 79%, 98%, 94%, 92% and 95%, 87%, 98%, 94%, 95% for iodixanol and iopamidol, respectively. Image quality was considered good or excellent in 88% of cases for iodixanol and 82.5% for iopamidol (p=0.38). Iopamidol patients experienced a greater frequency of moderate or severe flushing symptoms as compared to iodixanol patients (p=0.003). Differences in any patient symptoms between iodixanol and iopamidol groups were particularly evident for individuals > 55 years (p=0.015).

Conclusions: In this prospective multicenter randomized controlled trial, diagnostic accuracy and image quality were similar for CCTA performed with low versus high iodine contrast. Patients tolerated the low-iodine contrast better.